

**Economic Feasibility of Exporting Dried Seafood Products  
from Alaska to Selected Asian Markets**

prepared by

Gunnar Knapp  
Professor of Economics  
Institute of Social and Economic Research  
University of Alaska Anchorage  
3211 Providence Drive  
Anchorage, Alaska 99508  
(907) 786-7717 (telephone)  
(907) 786-7739 (fax)  
afgpk@uaa.alaska.edu (e-mail)

prepared for

Alaskan Dried Foods  
3017 Clinton Drive, Suite 100  
Juneau, Alaska 99801

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## Summary

This report discusses the economic feasibility of exporting dried fish products from Alaska to selected Asian markets. The report is based on studies of six Asian markets conducted under a Saltonstall-Kennedy (SK) funded research project on Asian market opportunities for dried Alaska seafood.

The studies provide a wide variety of useful information about Asian markets for dried fish products. This information represents a very useful starting point for Alaska processors interested in this market opportunity. The studies do not provide a basis for fully evaluating the potential for Alaska dried fish products in these markets—nor could they be expected to, given the wide variety of products and markets. However, they do provide a number of useful insights into the potential economic feasibility of dried fish exports to Asia.

- Asian countries consume large volumes of a wide variety of dried seafood products. There are large variations in dried seafood markets between countries, and within countries between regions and between demographic and income groups.
- Alaska dried fish products exported to Asian markets will face competition from both local production as well as from other Asian countries. Compared with Alaska producers, local and other Asian producers generally enjoy advantages of lower transportation costs, established marketing channels, familiarity with consumer tastes and preferences, lower labor costs (with the possible exception of Japan), and fishery resources for producing traditional dried seafood products.
- Two broad types of dried seafood products are consumed in Asian countries: “traditional” products and newer “snack food” products. There are important differences in the markets for these two types of products. Alaska producers are likely to find it difficult to compete in markets for traditional dried seafood products. These products are traditional *because* they could be made using locally available resources of fish, labor and technology at relatively low cost. In producing traditional products, Alaska producers would face the double challenge of meeting very specific consumer demands in competition with low-cost, local producers. Alaska producers face relatively more favorable conditions in competing in Asian markets for newer “snack-food” dried fish product, for which production is less labor intensive and more dependent on large resource volumes.

- Sales potential for many dried fish products is highly sensitive to price. Product appearance and packaging are important. Taking advantage of opportunities in Asian markets may require substantial upfront investments in marketing and promotion.

This report discusses approaches which can be used to evaluate the economic feasibility of specific products by comparing estimated costs of production and distribution with estimated prices for which products can be sold, and illustrates these approaches using cost and price data from the studies. These examples suggest that many dried seafood products are not likely to be economically viable, although some may be. Careful review of the studies may suggest specific opportunities for particular processors.

In evaluating the economic feasibility of specific products in specific markets, there is no substitute for careful market analysis. Would-be suppliers of dried fish products to Asia need to pay careful attention to market demands for factors such as flavoring, texture, packaging, and pricing, as well as their own cost structure.

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## Introduction

The purpose of this report is to examine the economic feasibility of exporting selected dried fish products from Alaska to selected Asian markets.

This report was prepared as a University of Alaska Anchorage contribution to a Saltonstall-Kennedy (SK) funded research project on “Dried Fish Asian Market Investigation and Analysis and an Industry Demonstration Project to Produce Dried Fishery Products from Underutilized Salmon and By-Catch Species.” In this report, I refer to that research project as the “SK project.”

Duff Mitchell, president of Alaskan Dried Foods and director of the SK project, described the purpose of the SK project and the questions he wished me to address as follows:

This demonstration project has the potential of spearheading a shift in the current Alaskan seafood processing industry’s strategic policy toward the inclusion of dried fish processing in its current product mix. The Asian dried fish market has virtually been ignored by American processors. . . The aim of this project is to “forward think” the possibilities and to determine if a dried fish industry is a viable avenue to process and profit from underutilized salmon and bycatch species.

It is obvious [from the reports prepared for the SK study] that a market for dried fishery products exists. The question that I would like you to evaluate is if Alaskan or West Coast processors can tap this potential and profit from it. Can Alaskan dried fishery products be economically produced to compete in the Asian dried fish markets?

There are two types of dried fish products: commodity type and snack foods. Is one more viable to process in Alaska over the other or is there relatively little difference?

This report is based primarily on studies of dried seafood markets in China, Hong Kong, Japan, Korea, Singapore and Taiwan compiled by a number of different researchers for the SK project, shown in the box on the following page. I did not attempt to collect any additional information about these markets independently.

The studies provide a wealth of information which will be valuable to anyone interested in opportunities for dried fish products in Asian markets, such as information about product forms, species, consumption levels, and market trends. The studies provide varying degrees of information about prices commanded by different products in these markets and costs of exporting to these markets.

By themselves, the studies do not provide sufficient information to fully evaluate the potential for Alaska dried fish products in these markets—nor could they be expected to.

As I discuss in this report, assessing the economic feasibility of any specific product requires careful analysis of the costs of producing and marketing that product, and the prices for which it can be sold. In the end, only a specific producer can undertake such an analysis. However, the information provided in the SK project studies provide a very useful starting point.

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**Summary of Information Sources for Asian Dried Seafood Markets  
Used for this Report**

*Note: These studies were prepared as part of the SK project. In this report, I use the names shown in brackets to refer to these studies.*

[CA] The Chinese Dried Fish Market. Prepared by Shawneen A. Conover and Yuan-fang Dong, The North Pacific Fisheries Program, University of Alaska Anchorage, March 1998.

[CB] Investigations of Dried Fishery Products on Chinese Market. Prepared by Wang QuiKuan, Jiang Zhikai, and Zhang Wenxiao, Dalian Fisheries University, Dalian, China.

[CC] Chinese Market Investigations of Dried Fishery Products from Alaska. Prepared by Jianrong Jerry Chang, Chang International Inc. and Wang Quikuan, (Dalian Fisheries University) August 1998.

[CD] Market Survey of Dried and Smoked Seafood in Northern China. Prepared by Jianrong Jerry Chang & John Gu of Chang International. September 4, 1998.

[J] Japan Market Investigation and Analysis. December 1997. Prepared by Asian Market Access, Pty. Ltd.

[HK] Hong Kong Dried Fish Market. Prepared by Shawneen A. Conover and Yuan-fang Dong. The North Pacific Fisheries Program, University of Alaska Anchorage, March 1998.

[K] Market Survey of Korean Dried Fishery Industry. Pacific Consultants Corporation, Seoul, Korea, December 30, 1997.

[S] The Singapore Market for Dried fish. Prepared by D. Richmond and Associates. November 1997.

[T] The Taiwan Dried Fish Market. Prepared by Charles V. Trappey. 1998.

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In this report I have attempted to provide an economic perspective on the potential viability

ity of exporting Alaska dried fish products to these Asian markets, based on the information provided in these studies. I begin by reviewing general considerations in evaluating economic viability of Alaska dried seafood products in Asian markets, as illustrated by the different studies. I then briefly review, from an economic perspective, some of the main insights provided by the studies with respect to opportunities for Alaska dried seafood products in each country.

### **General Considerations in Evaluating Economic Viability**

At the outset, it is useful to review some general considerations in evaluating the economic viability of *any* product. Many of these points may seem obvious—but they are worth repeating and remembering, because they are directly relevant in thinking about the economic viability of exporting dried fish products from Alaska to Asian markets. .

**Economic viability depends upon the specific product and the specific market.** There are many different dried seafood products and many different Asian markets. There is no single answer about the economic viability of these many different products in these many different markets. Some products are economically viable in some markets. Each product and market represents a different opportunity that must be studied and eventually tested before its economic viability can be known.

**For a product to be economically viable, the cost of producing the product—including costs of transportation and marketing prior to sale—must be less than the price at which it can be sold.** Another way of putting this most basic condition for economic viability is that neither the fact that it is possible to physically produce a product nor the fact that there are people who use the product is sufficient to guarantee that a product is economically viable. It has to be possible to produce the product for a cost less than the price that the users are willing to pay.

**The price for which Alaska products can be sold is influenced by the cost at which Alaska's competitors can supply the same or similar products.** If competing suppliers face substantially lower costs, then Alaska products are less likely to be economically viable.

**Some products may be economically viable on a small scale but not on a large scale.** This would be the case for products for which there is only narrow demand and a limited or niche market. Just because a particular product can be found selling in a particular country for a particular price doesn't necessarily mean that the market could absorb large-scale imports of that product from Alaska without saturating the market and leading to significant price reductions.

**Some products may be economically viable on a large scale but not on a small scale.** This would be the case for products for which there is potentially large-scale demand but also significant economies of scale in production and marketing.

**Economic viability is not fixed. Costs and markets change.** A product which can be produced and marketed profitably this year may no longer profitable next year—or vice versa. Among the most important factors which can change rapidly are raw material availability and cost, exchange rates, and political restrictions imposed by foreign countries. It is especially important to keep this point in mind in light of the economic turmoil over the past year in many Asian countries which were hit by severe recessions and currency devaluations.

**The only way to really learn if a product is economically viable is to produce it and market it.** A study like this can't definitively show either that a product is viable—or that it isn't. Products which look good on paper may encounter any number of unexpected obstacles in actual production and marketing. Products which look bad on paper may turn out to be very profitable. In many cases, the difference between success and failure may be factors which can not be captured in a feasibility study, such as ingenuity and initiative of the companies involved—or simple luck. Put differently, developing new products and markets is risky. Only by taking risks will the Alaska seafood industry develop new products and markets. At best a study like this can help to identify what the opportunities and risks may be.

### **Considerations in Evaluating the Economic Viability of Exporting Alaska Dried Seafood Products to Asian Markets**

We may next turn to some of the general considerations suggested by the SK studies with regard to the economic viability of Alaska dried seafood products in Asian markets. Many of the same points were raised by more than one study for more than one country. I have illustrated these points with quotations from different studies.

**In evaluating the economic feasibility of producing a new kind of product for a new market, there is no substitute for careful market analysis.** The studies emphasize repeatedly that would-be suppliers of dried fish products need to pay careful attention to factors such as flavoring, texture, packaging, and pricing. While this is important for marketing any kind of product, it is especially important when producers do not have first hand knowledge of the culture.

Making inroads into the Chinese market will take time and will require U.S. business to first do some homework. [CA i]

“In this fast paced, competitive society, all the plants realized that a complete marketing study is necessary for the successful introduction of a new good service.” [CB 13]

“The products should be processed upon the tastes and textures required by Chinese.” [CC 28]

“(In Dalian, China) it was mentioned by the international traders, supermarkets and consumers that some products, such as dried salmon, dried pollock are too dry to prepare for eating. All the products . . . are very dry and the moisture contents of the products are much lower than the similar products of China. The low content of moisture will increase the shelf life of the products. However, the texture is too hard and can not be easily accepted by Chinese.” [CC 5]

“Traditionally Japanese dried salmon products tend to be much softer than ‘salmon jerky.’” [J 33]

“Consequently, health aspects of a product have an extremely strong influence in the decision making process for pet foods. Japanese pet owners are particularly fussy about levels of salt, additives, fat and artificial colors.” [J 42]

“Since there is limited data about the marketplace, new entrants to the Taiwan market have to take a pioneering role in data collection and analysis.” [T ix]

The need for market analysis implies that in most cases Alaska processors would need to work with partners in Asian countries in order to market new dried seafood products to these countries successfully.

**Within Asian countries there are large variations in consumer demand between regions and between demographic and income groups.** Market opportunities for Alaska dried seafood products are likely to be with specific demographic and income groups in specific regions, as would be the case in any country.

“China is a country so vast in terms of the diversity of its geography, climate, and people that many Westerners find it difficult to understand its complexity. To generalize the Chinese and the Chinese market is a grave mistake, and is one often made by foreign companies trying to do business with China.” [CA 1]

“We must view China as a collection of regional markets with vast cultural differences and varying income levels. . . Dried fish consumption is considerably higher in the southern coastal areas where all types of dried fish products are popular with all age and income levels. Usually, most dried fish consumed in the east and northeastern areas are of the snack variety.” [CA 14]

One of the China studies shows significant differences in consumer product preferences (“percentage of people willing to buy”) depending on income level. “Percentage of people willing to buy” increases with in-

come for some kinds of dried seafood products, while declining with income for others. [CB 20-23]

“(In Singapore) Chinese women primarily use dried seafood for different soups, while Malay and Indian housewives are more likely to use dried seafood in curries.” [S 3]

**Alaska dried fish products exported to Asian markets will face competition from both local production as well as from other Asian countries.**

At present, local and other Asian producers are the primary suppliers of dried seafood products to other Asian markets. For example, Korea is a significant producer and exporter of dried seafood products, including dried Alaska pollock [K 8]. Much of the raw material for Korean dried seafood production is imported from China and Russia. China imports significant volumes of dried fish products from Japan and exports significant volumes of dried fish products to Japan, Hong Kong and Korea. [CA, 24-27, 58, 60].

In most of the current major Asian export markets for Alaska seafood products—such as sockeye salmon, herring, sablefish and crab—Alaska faces relatively less competition from local or other Asian producers.

Compared with Alaska producers, local and other Asian producers generally enjoy several kinds of advantages:

- Lower transportation costs.
- Established marketing channels.
- Familiarity with consumer tastes and preferences.
- Lower labor costs (with the possible exception of Japan).
- Fishery resources for producing traditional dried seafood products.

“Western dried fish processors should keep in mind the close proximity of the Asian countries that offer an abundant supply of inexpensive fish.” [HK 3]

“Breaking into the closely controlled, competitive market may prove challenging.” [HK 17]

“U.S. fishery products have a reputation among Korean buyers for quality and performance, yet Koreans tend to be very price conscious and often regard the U.S. label as too expensive. Fishery products from China, Russia and elsewhere are frequently considered to be better buys, even

though their quality may be acknowledged not to match that of the American item.” [K22]

“Reduce the production cost. Since Chinese labors are quite cheap, the best means to reduce the costs of the products is to import raw material and process it inside China. All the international traders suggested this idea and also mentioned that there are no processed fishery products imported to China except the frozen products up to now. In addition, processing the products in China can shorten the storage time of the processed products.” [CC 28]

“Packing materials develop very fast in China in recent years. . . Therefore, imported products can be packed in China as the labor and packing material costs are cheaper as well. Quite a lot of products are produced out of China and are packed in small packages in China. . . “ [CB 27]

“The main competitors of salmon jerky . . . are Japanese domestic manufacturers who have successfully developed a large variety of dried fish products to suit the Japanese market.” [J 37]

“(In Japan) the extensive range of (dog food) snacks offering small degrees of differentiation spelled an extremely competitive market in which the customer is presented many choices.” [J 44]

“(In Singapore), the (pet food) market is very competitive and there are a large number of brands of dog treats available. Japanese suppliers are believed to be especially strong competitors, with innovative good quality products and packaging.” [S 11]

“Taiwan’s dry seafood manufacturers and other food manufactures are gearing up for international market . . . More and more Taiwan dried fish products will be sold abroad.” [T ix]

“The future for dried fish products will certainly become more competitive over the next ten years. The market continues to liberalize and internationalize. As this process occurs and when Taiwan gains entry to the World Trade Organization, Japanese brands, packaging, and flavors will increase market share.” [T 3]

**Two broad types of dried seafood products are consumed in Asian countries: “traditional” products and newer “snack food” products. There are important differences in the markets for these two types of products.**

“Traditional” products reflect historical resource availability and technologies in Asian countries. These products are generally made with locally-harvested species using low-

technology, labor intensive drying techniques. Most traditional dried products are sold in bulk at relatively low prices, although some traditional products command high prices. They are generally eaten by lower-income and older consumers. They have specific, traditional characteristics of taste and texture which their consumers are familiar with and prefer. In general, demand for these products is stagnant or declining as they are replaced by more modern products.

Newer, “snack-food” products may be made with local or imported species using modern drying technologies. They are generally sold packaged in small sizes for higher prices, and are more likely to be consumed by younger and higher-income consumers. Although taste and texture matter to consumers, preferences are less traditional and new products are regularly introduced. Packaging and advertising are important in marketing these new products. In general, demand for these products is growing.

“Chinese consumers, for the most part, do not readily accept changes to their traditional diet. However, with more convenient fast foods and heavy promotion, the younger generation is moving farther away from the time consuming, traditional Chinese diet. Even with all the changes that the Chinese people have seen in the last few decades, younger Chinese still generally favor the taste of the traditional diet. The problem with maintaining the traditional diet of dishes prepared from dried fish is the preparation time, lack of knowledge on use of the product, and the price of the product. The higher price for dried fish makes it a prime target for substitutes—not just with fresh and frozen fish, but, particularly with the young generation, fast foods such as hamburgers, fried chicken and pizzas.” [CA i]

“Dried fish played a major role in the older traditional food customs of China. However, since the 1960s, technology improved and frozen fish grew in popularity, replacing much of the traditional dried fish products. Today dried fish is favored by the older generations of Chinese and those at lower income levels that still keep to their traditional diet. However, the somewhat new snack-type variety of dried fish products has gained a strong following with younger generations of Chinese and is gaining acceptance with other age levels and all income levels.” [CA 6]

“Dried fish snacks are high valued products, in higher demand than the traditional dried fish, and therefore, able to command higher prices. However, consumption of traditional dried fish is declining except in poor areas where income levels are slowly rising and among older (65+) Chinese. The price for these products must be kept low to compete with other products.” [CA 9]

“(In China) overall, children and young adults consume most of the snack-type dried fish products, while the older generation consumes the tradi-

tional whole or fillet-style dried fish products. . . The main reason for this generation gap is the preparation time for the products.”[CA 15]

“(In the Guangdong Region of China), low valued products are still available, but are consumed mainly by low income people.” [CA 15]

“(In China) the market size of fishery products . . . enlarges. But it doesn’t mean the market size for dried fishery products will increase as well. It is said according to several large fishery product processing companies that the market size for dried fishery products will be quite steady. The demand for high nutritious dried fishery products, such as dried sea cucumber and snack products, such as roasted fish fillet and shredded squid will increase in big cities, while the demand for dried mackerel, etc., will keep quite stable.” [CB 29]

According to several Hong Kong companies interviewed, some say the dried fish market is shrinking with fewer people eating salted/dried fish because they believe it causes cancer. [HK 6]

The increase in (Hong Kong) consumption is occurring in the high end, quality products such as shark fin, sea cucumber, abalone, bladders and snack-style products. [HK 6]

“While modern society is equipped with the necessary conveniences for refrigerating, freezing, and transporting fresh fish, individuals still enjoy the unique taste of dried fish products. This taste has survived decades, centuries and generations and is unlikely to wane considerably in the upcoming years . . . Nonetheless, fully preserved dried fish products are not as popular today. Japanese tastes have advanced with the economic boom. [J 3, 4]

“Generally, [Korean] family unit consumers are mostly loyal to local dried fishery products. Restaurants and snack industry show low loyalty to local products, because they reprocess and supply it without origin labeling for their end-consumers.” [K22]

“(In Singapore) a recently published medical study has indicated that the consumption of dried seafood is likely to cause cancer. This has further eroded the interest in dried seafood.” [S 2]

“The lifestyle in Singapore is becoming more hectic and more than 55 percent of women are working . . . It is widely believed that only the older generation uses dried seafood in their traditional cooking.” [S 3]

“(In Singapore) some forms of dried seafood, e.g. sharksfin and scallops,

are considered a delicacy and prices have increased considerably over the years. Consequently some dried fish is now considered to be a rich man's food rather than modestly priced products. Other types of dried seafood are viewed as a commodity and profit margins are low. Dried seafood has been around for a long time and it is pretty standard fare." [S 3]

**Alaska producers are likely to find it difficult to compete in markets for traditional dried seafood products.** These products are traditional *because* they could be made using locally available resources of fish, labor and technology at relatively low cost. The product attributes traditionally favored by consumers reflect in part the specific local production practices. In producing traditional products, Alaska producers would face the double challenge of meeting very specific consumer demands in competition with low-cost, local producers.

"Literally thousands of small individual producers/fishermen account for most of the dried fish products used for cooking." [CA 29]

"At least for the southern coastal areas, most people will insist that the sun-dried method for processing fish is far superior to machine dried processes and produces a much better taste." [CA 11]

**Alaska producers face relatively more favorable conditions in competing in Asian markets for newer "snack-food" dried fish products.** Production of these products is less labor intensive and depends more on high technology equipment and large resource volumes. In these areas Alaska producers have at least the theoretical potential to enjoy cost advantages which might offset competitive disadvantages of transportation costs and market access.

"(In Northern China), large companies . . . use state-of-the-art technology for processing their dried fish products. To ensure efficient and profitable use of this high tech processing equipment, the company must secure large supplies of the raw material to satisfy the considerable production capacity. Equally important, the market for these dried fish products must be extremely large such as only the Asian market can supply." [CA 12]

"Production for the snack food sector of the dried fish market is dominated by large processing companies." [CA 29]

"Over the past few years, [Japanese] manufacturers have begun utilizing a number of pre-processing methods prior to the main drying process stage, in order to improve the taste and texture of dried fish. In response to new consumer demand for half-dried moist fish products, there has been a growing trend for some dried foods to use technically advanced air tight packaging which helps to maintain the quality and softness of the product. [J 29]

“Interviews with manufacturers and retailers indicated that there is a preference for dried fish that is soft. Salmon or fish jerky is relatively unheard of in Japan, but given the huge success of beef jerky and the popularity of fish in Japan there would appear to be many opportunities for the maturation of this market.” [J 36]

**Sales potential for many dried fish products is highly sensitive to price.**

“First, the foreign company must have an acceptable product at a reasonable price. Dried fish is price sensitive to current market conditions. [CA ii]

“Price is one of the most important factors which relate to the sale volume. The marketing potential has very close relationship with the income status of consumers. Therefore, if a new products is put on the market, the important factors should be considered is the purchase capacity of the customers.” [CB 31]

“A competitive price will be an important factor in the (Japanese) consumer’s decision to purchase the product both in the long and short-term. [J 47]

“One (Singapore) importer stated that price may be a major problem in the marketing of dried salmon. This fish is perceived to be a medium-to-high priced seafood and major buyers are likely to be older housewives who are extremely price conscious.” [S 11]

**Product appearance and packaging are important.**

“Providing the product meets the quality and price standards, it needs to be carefully packaged for the targeted consumers; e.g., seasoned snacks in brightly colored, small convenient packages for younger consumers. . . “ [CA ii]

“Another important factor which would affect people’s preference is the package. The package for snack food should have suitable amount and attractive design.” [CB 27]

“While an original label with a design that allows the consumer to identify

with the product's Alaskan origin will be a useful sales tool, it is important that the quality, flavor, size of packaging and type of packaging is similar to products already available in the market." [J 47]

**Taking advantage of opportunities in Asian markets may require substantial upfront investments in marketing and promotion.**

"Chinese consumers do not easily accept new products. Past experience shows that when fisheries products are abundant on the market, the Chinese people are not ready or willing to accept new products." [CA 17]

"In recent two years, so many new products are put on the market. Most customers usually do not buy them as they do not notice the new brand of products unless they have known through the advertisements. . . [CB 26]

"Aggressive marketing and promotion of a product are major keys in entering and maintaining a share of the Hong Kong market." [HK 17]

"(In Singapore) . . . it is generally believed (by the importers who were interviewed) that there may be some market for (other dried salmon products). However, there will need to be a substantial amount of market development work undertaken in conjunction with such products. Consumers are not familiar with the use of salmon in cooking and recipes will need to be developed and distributed." [S 11]

**A Framework for Assessing Economic Viability  
of Alaska Dried Seafood Products in Asian Markets**

There are two basic approaches which may be used for assessing the economic viability of Alaska dried seafood products in Asian markets: a "bottom-up" approach or a "top down" approach. These approaches are illustrated in Table 1 and Table 2. They are mathematically equivalent—they are based on the same assumptions and produce the same answer. The only difference is that they approach the same question from different ends of the distribution chain.

The "bottom-up" approach (Table 1) starts with the estimated FOB ("free on board") Alaska cost for the dried seafood product. This is basically all costs incurred in producing the product prior to shipment from Alaska. (Factors in the FOB Alaska cost are discussed later in this report.) To assess the economic viability of the product in an Asian market, estimated cost factors are added in getting the product to the point of retail sale. These cost factors include freight and insurance, and importing, wholesaling and retailing costs (expressed as percentage margins). The sum of these costs is the "estimated retail cost." If the estimated retail cost is less than the estimated retail price for which the product could be sold, then the product is economically viable or feasible.

The “top-down” approach (Table 2) starts with the estimated retail price for which the product could be sold in the Asian market. Estimated cost factors are then subtracted to estimate the price which the product could command earlier in the distribution chain. Subtracting retailing costs, wholesaling costs, importing costs, and freight and insurance gives the estimated FOB Alaska price that the product could command. If the estimated FOB Alaska price is less than the estimated FOB Alaska cost, then the product is economically viable or feasible.

**Table 1**  
**A Hypothetical Example of Bottom-Up Calculation of Economic Feasibility:**  
**Comparison of Estimated Retail Cost with Estimated Retail Price**

	Assumptions	Calculation	Cost
FOB Alaska cost	\$1.50		\$1.50
Freight and insurance costs (\$/lb)	\$0.10		
CIF cost		Add freight and insurance costs	\$1.60
Importer % margin (including tariffs)	10.0%		
Importer cost		Multiply by (1+ importer margin)	\$1.76
Wholesale % margin	12.5%		
Wholesale cost		Multiply by (1+ wholesale margin)	\$1.98
Retail % margin	28.0%		
Retail cost in \$/lb		Multiply by (1+ retail margin)	\$2.53
Retail cost in \$/kg		Multiply by 2.2046	\$5.59
Estimated retail price (\$/kg)	\$6.00		\$6.00
Is product economically feasible?		Yes if price > cost; No if price < cost	Yes

**Table 2**  
**A Hypothetical Example of Top-Down Calculation of Economic Feasibility:**  
**Comparison of Estimated FOB Alaska Cost with Estimated FOB Alaska Price**

	Assumptions	Calculation	Prices
Estimated retail price (\$/kg)	\$6.00		\$6.00
Retail price in \$/lb		Divide by 2.2046	\$2.72
Retail % margin	28.0%		
Wholesale price		Divide by (1+ retail margin)	\$2.13
Wholesale % margin	12.5%		
Importer price		Divide by (1+ importer margin)	\$1.89
Importer % margin (including tariffs)	10.0%		
CIF price		Divide by (1+ wholesale margin)	\$1.72
Freight and insurance costs (\$/lb)	\$0.10		
FOB Alaska price		Subtract freight and insurance costs	\$1.62
Estimated FOB Alaska cost	\$1.50		\$1.50
Is product economically feasible?		Yes if price > cost; No if price < cost	Yes

Regardless of whether the analysis uses a “bottom-up” or a “top-town” approach, it requires the development of assumptions about the following:

FOB Alaska cost of production (raw material, labor, packaging, energy, plant, etc.)

Cost of transportation to end market

Costs of importing (tariffs, unloading, importer fees, etc.; usually expressed as a percentage)

Costs of wholesaling (storage, transportation, additional packaging if any, etc; usually expressed as a percentage)

Costs of retailing (labor, overhead, etc.; usually expressed as a percentage)

Estimated retail price for which product can be sold

Alternatively, either approach could be shortened by comparing an estimated wholesale cost with an estimated wholesale price, or by starting with an estimated wholesale price to calculate an estimated FOB Alaska price.

The remainder of this report first reviews the information gathered in the SK project about these different cost elements and the estimated retail or wholesale prices for which dried seafood products could be sold. It then uses these products to examine the economic viability of selected products.

### **FOB Alaska Costs of Production**

The starting point for evaluating economic feasibility of products for an export market is a realistic assessment of Alaska production costs. It is difficult for companies to estimate potential production costs for new products that they are not currently producing or which are not widely produced by others. Companies that are actually in business producing a product are usually extremely reluctant to share cost information with anyone else, in particular with potential competitors.

Tables 3A and 3B provide hypothetical examples of how FOB Alaska costs may be calculated for selected dried seafood products. Note that the costs shown in these tables are at best very rough “ballpark” estimates and are not necessarily representative of costs that would be faced by Alaska dried seafood producers. Table 3A shows “high” cost estimates for a relatively small, labor intensive operation getting started in dried product production and marketing. Table 3B shows “low” cost estimates for a larger, capital-intensive operation producing volumes sufficient needed to realize economies of scale. Smaller operations may experience significantly higher per-pound costs for labor, materials, and plant and administrative.

One critical factor in evaluating production cost is the dry recovery rate, or the ratio of dried product weight to wet product weight (column b in Tables 3A and 3B). Because the recovery rate for dried seafoods is typically low (less than one-third), raw material costs before drying are likely increase by a factor of three or more when measured in cost per

dry pound. It is also important to include desired profit (column f) in calculating production costs.

**Table 3A**  
**Calculation of FOB Alaska Costs: Hypothetical Costs for Selected Products (High)**

	Raw material cost before drying (\$/wet lb)	Dry recovery rate (% of raw wt.)	Raw material cost after drying (\$/dry lb)	Labor and materials (\$/dry lb)	Plant and admin. overhead (\$/dry lb)	Desired profit (%)	Total FOB cost (\$/dry lb)
	a	b	c = a / b	d	e	f	g = (c x d) + e + f
Dried salted chum salmon fillets	<b>\$0.70</b>	<b>33%</b>	\$2.12	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Salted pink salmon bits	<b>\$1.00</b>	<b>33%</b>	\$3.03	<b>\$1.85</b>	<b>\$1.85</b>	<b>25%</b>	
Dried ready to eat chum salmon	<b>\$0.70</b>	<b>33%</b>	\$2.12	<b>\$1.85</b>	<b>\$1.85</b>	<b>25%</b>	
Dried skate wings	<b>\$0.25</b>	<b>20%</b>	\$1.25	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried herring	<b>\$0.09</b>	<b>30%</b>	\$0.30	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried Illex squid	<b>\$0.27</b>	<b>30%</b>	\$0.90	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried sardines	<b>\$0.09</b>	<b>30%</b>	\$0.30	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried Atka mackerel	<b>\$0.11</b>	<b>30%</b>	\$0.37	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried Arrowtooth flounder	<b>\$0.03</b>	<b>20%</b>	\$0.15	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried flathead sole	<b>\$0.05</b>	<b>20%</b>	\$0.25	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried surimi snackfood	<b>\$0.30</b>	<b>30%</b>	\$1.00	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	
Dried scallops	<b>\$2.55</b>	<b>30%</b>	\$8.50	<b>\$1.25</b>	<b>\$1.85</b>	<b>25%</b>	\$

Note: Assumptions are shown in bold font; calculations are shown in regular font. Source: Hypothetical costs and recovery rates provided by Duff Mitchell, Alaskan Dried Foods. These costs and recovery rates are hypothetical costs for a relatively small, labor-intensive operation getting started in dried product production and marketing. They are not necessarily representative of costs that would actually be experienced by Alaska dried seafood producers.

File: FOB.xls.

**Table 3B**  
**Calculation of FOB Alaska Costs: Hypothetical Costs for Selected Products (Low)**

	Raw material cost before drying (\$/wet lb)	Dry recovery rate (% of raw wt.)	Raw material cost after drying (\$/dry lb)	Labor and materials (\$/dry lb)	Plant and admin. overhead (\$/dry lb)	Desired profit (%)	Total FOB cost (\$/dry lb)
	a	b	c = a / b	d	e	f	g = (c x d) + e + f
Dried salted chum salmon fillets	<b>\$0.70</b>	<b>33%</b>	\$2.12	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Salted pink salmon bits	<b>\$1.00</b>	<b>33%</b>	\$3.03	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried ready to eat chum salmon	<b>\$0.70</b>	<b>33%</b>	\$2.12	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried skate wings	<b>\$0.25</b>	<b>20%</b>	\$1.25	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried herring	<b>\$0.09</b>	<b>30%</b>	\$0.30	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried Illex squid	<b>\$0.27</b>	<b>30%</b>	\$0.90	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried sardines	<b>\$0.09</b>	<b>30%</b>	\$0.30	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried Atka mackerel	<b>\$0.11</b>	<b>30%</b>	\$0.37	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried Arrowtooth flounder	<b>\$0.03</b>	<b>20%</b>	\$0.15	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried flathead sole	<b>\$0.05</b>	<b>20%</b>	\$0.25	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried surimi snackfood	<b>\$0.30</b>	<b>30%</b>	\$1.00	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	
Dried scallops	<b>\$2.55</b>	<b>30%</b>	\$8.50	<b>\$0.30</b>	<b>\$0.30</b>	<b>25%</b>	\$

Note: Assumptions are shown in bold font; calculations are shown in regular font. Source: Hypothetical costs and recovery rates provided by Duff Mitchell, Alaskan Dried Foods. These costs and recovery rates are hypothetical costs for a relatively large-scale capital-intensive operation producing volumes sufficient needed to realize economies of scale. They are not necessarily representative of costs that would actually be experienced by Alaska dried seafood producers. File: FOB.xls.

For companies contemplating producing dried seafood products for Asian markets, there

is no substitute for careful thought and research about key cost elements in production.

In the remainder of this report, I use the FOB cost estimates shown in Tables 3A and 3B for several economic feasibility examples. Again, however, the reader is reminded that these cost estimates are only “ballpark” estimates.

### **The Chinese Market**

Information about the Chinese market was provided in the following studies:

[CA] The Chinese Dried Fish Market. Prepared by Shawneen A. Conover and Yuan-fang Dong, The North Pacific Fisheries Program, University of Alaska Anchorage, March 1998.

[CB] Investigations of Dried Fishery Products on Chinese Market. Prepared by Wang QuiKuan, Jiang Zhikai, and Zhang Wenxiao, Dalian Fisheries University, Dalian, China.

[CC] Chinese Market Investigations of Dried Fishery Products from Alaska. Prepared by Jianrong Jerry Chang, Chang International Inc. and Wang Quikuan (Dalian Fisheries University), August 1998.

[CD] Market Survey of Dried and Smoked Seafood in Northern China. Prepared by Jianrong Jerry Chang and John Gu of Chiang International. September 4, 1998.

It is clear from the studies that a very wide variety of dried fish products are consumed in China. [CA 6-7] There are important variations in dried fish consumption by region and by income group.

To export dried fish products to China, an Alaska processors would normally work with a Chinese foreign trade company (FTC). [CA 35] The studies indicate that costs incurred prior to retail sale in China would include customs duty, harbor dues, transportation cost, storage cost, distribution cost, and profit of 20-30%. [CC 5] However, the studies do not provide estimates of these costs.

The studies collected a wholesale and retail price information for a variety of dried seafood products in several different regions, which provide an indication of general price levels commanded by different kinds of dried seafood products. [See for example CA 61, 63, 64; CB 32, CC, CD].

Probably the most useful data provided by these studies for assessing the economic feasibility of exporting Alaska dried seafood products to China were estimates provided in interviews by international traders, supermarkets and consumers with regard to the

prices that could be received at the retail, wholesale and C&F levels for thirteen sample products from Alaska. [CC] Different persons gave widely differing answers—which led the study authors to observe that “it is very difficult for one to estimate the price for a new product on the basis that he or she doesn’t know the production cost.” Even though it is difficult, this is exactly what must one attempt to do if one is to realistically evaluate the economic viability of a new product in the Chinese market (or any other).

Table 4 illustrates a “top-down” approach which could be used to estimate the Alaska FOB prices which Alaska processors might be able to receive for selected dried seafood products exported to China, calculating by subtracting an assumed transportation cost from the C&F prices estimated by traders. Comparing the estimated Alaska FOB price ranges with the estimated FOB Alaska costs from Tables 3A and 3B suggests that some dried seafood products may be economically viable while others would likely not be viable. The same approach could be used for the price estimates obtained for other regions and products.

**Table 4**  
**Examples of "Top Down" Analysis of Economic Feasibility for Dried Seafood Products**  
**Exported to Qingdao, China, based on International Traders' Estimates of C&F Prices**  
**for Sample Products**

	Estimated C&F price US\$/ton (a)		Estimated C&F price US\$/lb (b)		Assumed transport cost in US \$/lb (c)	Estimated FOB Alaska price (\$/lb) (d)		Estimated FOB Alaska cost (\$/lb) (e)		Economic feasibility (f)
	Low	High	Low	High		Low	High	Low	High	
Salmon bits	4,000	8,500	\$1.81	\$3.86	\$0.25	\$1.56	\$3.61	\$4.54	\$8.41	low
Dried salmon	3,600	7,000	\$1.63	\$3.18	\$0.25	\$1.38	\$2.93	\$3.40	\$7.28	low
Dried skate wings	6,000	10,000	\$2.72	\$4.54	\$0.25	\$2.47	\$4.29	\$2.31	\$5.44	moderate
Dried herring	800	1,500	\$0.36	\$0.68	\$0.25	\$0.11	\$0.43	\$1.13	\$4.25	low
Dried Illex squid	6,000	18,000	\$2.72	\$8.16	\$0.25	\$2.47	\$7.91	\$1.88	\$5.00	moderate
Dried scallops	7,000	18,000	\$3.18	\$8.16	\$0.25	\$2.93	\$7.91	\$11.38	\$14.50	low

(a) International Traders' estimates [CC 6].

(b) Calculated by dividing by 2204.6 pounds per ton.

(c) Hypothetical assumption. Data were not available.

(d) Calculated by subtracting transport cost from C&F price.

(e) Source is estimates shown in Tables 3A and 3B.

(f) Feasibility was "low" if estimated entire Alaska cost range exceeded entire estimated FOB Alaska price range.

File: China.xls.

These interviews also provided some direct feedback with respect to the outlook for specific Alaska dried products in China:

“The market investigations of thirteen samples showed that some products, such as dried squid and flounder are quite favorable to

Chinese, while some products, such as smoked salmon bits, “can-died” fish, shark fin, scallop and octopus would occupy the market if they can be improved on their tastes or appearances or processing technologies or packages. The remaining products can be marketed in selected areas. . . Since the appearances of the products are different from the similar products in China, herring and mackerel did not get prospective findings from the investigations.” [CC 19]

“The investigations also showed that nobody has the interests in dried herring. People surveyed gave the opinion that this kind of product can not be marketed in Shanghai. Furthermore, neither the supermarkets nor the consumers prefer the dried salmon and dried scallop. For the same reason—dried salmon is very dry and hard . . . “ [CC 10]

“Some views are also provided by the international traders of Guangzhou that the processed products will have some difficulties to market in China since the retail prices may be high and the tastes are different.” [CC 17]

### **The Hong Kong Market**

Information about the Hong Kong market was provided in the following study:

[HK] Hong Kong Dried Fish Market. Prepared by Shawneen A. Conover and Yuan-fang Dong. The North Pacific Fisheries Program, University of Alaska Anchorage, March 1998.

The study notes that relatively little dried fish is consumed in Hong Kong, that consumption may be declining, and is in any case not likely to increase rapidly. Dried fish products appear limited to certain traditional uses (for example, dried shark fins and bladders) and snack-style products. [HK 6, 7].

The study suggests that marketing dried fish products to Hong Kong is not likely to be easy and would require substantial investment in marketing:

“Western dried fish processors should keep in mind the close proximity of the Asian countries that offer an abundant supply of inexpensive fish.” [HK 3]

“Breaking into the closely controlled, competitive market may prove challenging.” [HK 17]

“Aggressive marketing and promotion of a product are major keys in entering and maintaining a share of the Hong Kong market.” [HK 17]

Examples of percentage markups during the distribution chain [HK 16] suggest that prices may increase by 30% from “primary processors/suppliers” to “primary wholesalers” and by another 20-40% to “retailers and restaurants.” This information is insufficient to judge the actual shipping and distribution costs which might be involved in exporting Alaska dried products to the Hong Kong market.

The study lists wholesale prices for selected high-end (“5-Star Restaurant Quality”) products [HK 27] as well as supermarket retail prices [HK 28]. It is clear from this information that high prices are paid for some dried fish products in Hong Kong. However, the pricing information is insufficient to evaluate the prices that Alaska dried fish products might be able to command in the Hong Kong market.

Table 5 illustrates a “top-down” approach which could be used to estimate the Alaska FOB prices which Alaska processors might be able to receive for dried seafood products exported to Hong Kong, working backwards from retail prices. However, because data were not available, the “percent markup” and “transport cost” assumptions shown in the table are only hypothetical. For a serious evaluation of the FOB Alaska prices which could be obtained for products exported to Hong Kong, it would be necessary to gather information about what these costs are likely to be.

**Table 5**  
**Examples of "Top Down" Estimates of Alaska FOB Prices**  
**Which Could be Received for Products Exported to Hong Kong**

Product	Price level	Price in HK\$/kg	Assumed % markup from import price (a)	Estimated import price in HK\$/kg	Estimated import price in US\$/lb (b)	Transport cost (\$/lb) (c)	Estimated FOB Alaska price (\$/lb)
Dried snack-style squid	Retail-Supermarket	288	50%	192	\$11.24	\$0.25	\$10.99
Chai fish (hake)	Retail-Supermarket	176	50%	117	\$6.87	\$0.25	\$6.62

(a) Markup from import price assumptions are based on "Pricing Mark-Up Example" [HK 16]. Note that actual % markups may differ widely from the assumptions shown. To develop more reliable estimates would require better data on distribution costs and markups within Hong Kong.

(b) Assumes exchange rate of 7.7459 HK\$ per US\$.

(c) Assumption for purposes of illustrating methodology. Actual transport cost data were not available.

File: Hongkong

## **The Japanese Market**

Information about the Japanese market was provided in the following report:

[J] Japan Market Investigation and Analysis. December 1997. Prepared by Asian Market Access, Pty. Ltd.

This report provides an overview of the Japanese consumption, production and imports of dried and salted seafood. A more detailed discussion is provided about salmon jerky for human consumption and for pet foods.

It is clear from the report that Japan produces, imports and consumes substantial quantities of dried seafood products [J 4-5], including some imported Alaska salmon jerky products [J 33]. There is also a substantial market for dried seafood pet food products [J 41, 44, 45]. There are a wide variety of processing methods for dried fish [J 30-31] and dried fish producers [J 37]. Japanese consumer tastes are changing away from fully preserved dried fish products to a greater preference for soft and moist dried fish products [J 4].

In general, the report does not provide information about prices of dried food products or costs involved in exporting to or distribution within Japan which could be used to directly assess the economic feasibility of exporting dried seafood products from Alaska to the Japanese market.

Additional information relating to Japanese dried fish wholesale prices and costs was provided by Tomohiro Asakawa, a Fishery Trade Specialist with the National Marine Fisheries Service at the U.S. Embassy in Tokyo.<sup>1</sup> Asakawa provided “very crude estimates” of CIF (cost, insurance and freight) prices which Alaska dried seafood products might be able to command in Japan, which are shown in the right-hand column of Table 7. These estimates were based on “current wholesale prices for similar products available in the Japanese market and/or based on 20% product yield from raw material and 20% costs incurred on wholesale price for import duty, customs office charges, trucking charges, etc. Please note that the prices vary depending on species, product styles, package styles, and buyers’ preference.”

Tables 6 and 7 illustrate a simple “bottom-up” approach for comparing estimated CIF (cost, insurance and freight) costs of Alaska dried products exported to Japan with Asakawa’s CIF price estimates. Table 6 illustrates the estimation of CIF costs based on assumptions about transportation and insurance costs and the exchange rate between the yen and the dollar.

The middle columns of Table 7 show the effect of the exchange rate between the yen and the dollar on the CIF costs estimated in Table 6. In 1998, the exchange rate varied from more than 140 yen/dollar to less than 110 yen/dollar. Changes of this magnitude have a dramatic effect on CIF costs expressed in yen—and add to the risk involved in exporting

any Alaska seafood product to Japan.

**Table 6**  
**"Bottom Up" Calculation of Hypothetical Japan CIF Costs for Selected Products**

	Total FOB cost (\$/dry lb) g		Transportation & insurance (\$/lb) h = .22 + .01 x g		CIF cost (\$/lb) j = (g+h)(1+i)		Exchange rate (yen/\$) k	CIF cost (yen/kilo) m = j x k x 2.2	
	Low	High	Low	High	Low	High		Low	Hi
Dried salted chum salmon fillets	\$3.40	\$6.53	\$0.25	\$0.29	\$3.66	\$6.81	120	967	1
Salted pink salmon bits	\$4.54	\$8.41	\$0.27	\$0.30	\$4.80	\$8.72	120	1271	2
Dried ready to eat chum salmon	\$3.40	\$7.28	\$0.25	\$0.29	\$3.66	\$7.57	120	967	2
Dried skate wings	\$2.31	\$5.44	\$0.24	\$0.27	\$2.56	\$5.71	120	676	1
Dried herring	\$1.13	\$4.25	\$0.23	\$0.26	\$1.36	\$4.51	120	359	1
Dried Illex squid	\$1.88	\$5.00	\$0.24	\$0.27	\$2.11	\$5.27	120	559	1
Dried sardines	\$1.13	\$4.25	\$0.23	\$0.26	\$1.36	\$4.51	120	359	1
Dried Atka mackerel	\$1.21	\$4.33	\$0.23	\$0.26	\$1.44	\$4.60	120	381	1
Dried Arrowtooth flounder	\$0.94	\$4.06	\$0.23	\$0.26	\$1.17	\$4.32	120	309	1
Dried flathead sole	\$1.06	\$4.19	\$0.23	\$0.26	\$1.29	\$4.45	120	342	1
Dried surimi snackfood	\$2.00	\$5.13	\$0.24	\$0.27	\$2.24	\$5.40	120	593	1
Dried scallops	\$11.38	\$14.50	\$0.33	\$0.37	\$11.71	\$14.87	120	3098	2

Notes: Assumptions are shown in bold. See text for discusison of assumptions.

g FOB cost assumptions are hypothetical estimates from Tables 3A and 3B.

h Assumes transportation cost of \$.22/lb and insurance of 1% of FOB cost.

k Hypothetical exchange rate; actual exchange rate could differ substantially.

File: Japan.xls.

**Table 7**  
**Effect of Exchange Rate on Hypothetical CIF Costs for Selected Products**

	Estimated CIF cost for different exchange rates						CIF price estimated by Asakawa
	100		120		140		
	Low	High	Low	High	Low	High	
Dried salted chum salmon fillets	806	1502	967	1802	1128	2102	1500
Salted pink salmon bits	1059	1922	1271	2306	1482	2690	1700
Dried ready to eat chum salmon	806	1669	967	2002	1128	2336	1700
Dried skate wings	563	1259	676	1511	789	1763	1200
Dried herring	299	995	359	1194	419	1393	500
Dried Illex squid	466	1162	559	1394	652	1627	900
Dried sardines	299	995	359	1194	419	1393	300
Dried Atka mackerel	318	1013	381	1216	445	1419	500
Dried Arrowtooth flounder	257	953	309	1144	360	1334	200
Dried flathead sole	285	981	342	1177	399	1373	4000
Dried surimi snackfood	494	1190	593	1428	691	1666	1500
Dried scallops	2581	3277	3098	3933	3614	4588	6000

Notes: Bold font indicates that estimated CIF cost is less than CIF price estimated by Asakawa.

File: Japan.xls.

Comparing Asakawa's "very crude" estimates of CIF prices with the estimated CIF costs shown in the middle of Table 5, for most products the "low" estimated CIF costs are less than the estimated CIF prices but the "high" estimated CIF costs are more than the estimated CIF prices. This suggests that at the low cost assumptions export of these products to Japan would be economically feasible, but at the high cost assumptions it would not.

### **The Korean Market**

Information about the Korean market was provided in the following study:

[K] Market Survey of Korean Dried Fishery Industry. Pacific Consultants Corporation, Seoul, Korea, December 30, 1997.

The report provides a variety of practical introductory information relating to the Korean dried fish market, including products, drying methods, consumer preferences, packaging and recipes. Korea is a significant producer and exporter of dried seafood products, including dried Alaska pollock [K 8]. Much of the raw material for Korean dried seafood production is imported from China and Russia. [K2]. Korea is also a producer of drying machines. [K 5-6] With increases in income and changes in lifestyle, consumer tastes are evolving towards processed, ready-to-cook, well-packaged and high-grade dried seafoods [K 12]

Demand is increasing for dried fish snack products. Loyalty to local traditional dried products might be an obstacle to selling traditional items; this is less likely to be an obstacle for snack-food products. [K 22]

The report suggests that U.S. dried fishery products might face competition from cheaper products from China and Russia.

The report summarizes import costs as follows [K 23]:

Tariff costs	20% of CIF
Agent's commission	5-10% of CIF or FOB
Korean Port Charges	2-3% of CIF
Value Added Tax (VAT)	10%
Average local freight cost	5-10% of CIF

However, the report does not provide any information on wholesale prices for dried fish products, so it is not possible to draw any conclusions about the economic viability of specific dried seafood products.

## **The Singapore Market**

Information about the Singapore market was provided in the following study:

[S] The Singapore Market for Dried fish. Prepared by D. Richmond and Associates. November 1997.

The study provides a variety of practical information about the Singapore dried seafood market. Interviews indicated that market growth for dried seafood products in general has been stagnant or negative in recent years, as a result of health concerns and reduced time for in-home food preparation. [S 2] The study also summarized responses of potential distributors to several different dried salmon products, including salmon jerky and dried salmon skins (for pet food), with specific pricing recommendations and recommendations for marketing. [S 9-13]. The study reported generally favorable responses with respect to the potential for salmon jerky and other dried salmon products. [S 10-13]

The Alaska FOB prices that could be obtained by exporting these products to Singapore could be estimated by subtracting estimated distribution cost markups [provided on page S 7] and estimated transportation costs from these recommended pricing levels. Comparing these FOB price estimates with estimated production costs (which were not available for these sample products) could provide a simple “top-down” indication of economic feasibility.

## **The Taiwan Market**

Information about the Taiwan market was provided in the following study:

[T] The Taiwan Dried Fish Market. Prepared by Charles V. Trappey. 1998.

The report provides very detailed information about dried fish products (including numerous pictures), production processes, and retail outlets. A survey of 104 adults collected detailed information about consumer dried fish preferences and habits. Retail prices are provided for a wide variety of products sold in different kinds of stores [T 84-90].

The report does not provide information on distribution costs in Taiwan. The following information on costs was provided separately by a Taiwan-based consultant:<sup>2</sup>

The tariff for dried seafood ranges from 15% to 40% plus 0.5% of port tax. The cost for customs clearance and transportation is about 5% of the CIF price. Also 5% VAT is required. Importers normally mark up 25-30% for wholesale price, and wholesalers take 10-20% of margin. For retailers, they add 20-30% profit.

Using the retail price information in the report, a “top-down” approach similar to that illustrated in Table 5 could be used to estimate potential FOB Alaska prices that could be received for these products if they were produced in Alaska.

<sup>1</sup>This information was provided in an e-mail message from Tomohiro Asakawa to Duff Mitchell dated September 22, 1998.

<sup>2</sup>E-mail correspondence from Steven Chu and Associates to Duff Mitchell, Alaskan Dried Foods, September 9, 1998.